

Sample Student-Completed Research Design Table

Hypothesis draft: If seed size is related to strength of the seedling, then larger seeds will break through stronger surfaces more consistently and with less damage to the seedling.

<p>Independent Variable</p> <p>varying solid surfaces for seedlings to grow through</p>	<p>Background Questions</p> <p>Determine which species of seeds will be used for "large" and "small" and how can I measure the size of the seed?</p> <p>What type of seed has a fast germination rate and is easy to grow in controlled conditions?</p> <p>What are the best solid surfaces to represent different levels of solid surfaces? (plaster of paris, concrete mix, spackling paste?) What other variables might be introduced by using these materials? How can I reduce those?</p> <p>What are the best ways to measure "strength" of seedlings? (crack of surfaces, speed at which they get through the surface?)</p>			
<p>Dependant Variable</p> <p><u>Quantitative</u></p> <p># of days it takes to break through surface</p> <p>width/length of the crack</p> <p>Thickness of seedling stem</p> <p><u>Qualitative</u></p> <p>Condition of the seedling during & after breaking through surfaces</p> <p>condition of roots and seedling</p>	<p>Constants</p> <ul style="list-style-type: none"> Seedlings all have the same lighting, watering and feeding schedule (Plants are rotated weekly) Data collection is done at the same time every day Temperature of the room remains the same for all seedlings Seeds of the same kind were bought at the same time and from the same package Seeds are all planted in the same type and size container (clear plastic cup) All seeds have the same quality and amount of soil underneath the solid surface Depth of solid surfaces are equal among experimental groups 			
<p>Experimental Groups & Control Group</p>	<p>Control Group</p> <p>No solid surface (just soil)</p>	<p>Exp. Group #1:</p> <p>Spackling paste .5 cm, 1 cm, 1.5 cm</p>	<p>Exp. Group #2</p> <p>Plaster of paris .5 cm, 1 cm, 1.5 cm</p>	<p>Exp. Group #3</p> <p>Concrete mix .5 cm, 1 cm, 1.5 cm</p>

Empty Research Design Table

Hypothesis draft:

Independent Variable	Background Questions			
Dependant Variable <u>Quantitative</u> <u>Qualitative</u>	Constants			
Experimental Groups & Control Group	Control Group	Exp. Group #1:	Exp. Group #2	Exp. Group #3

